Docket No. 13-0550
ICC Staff Exhibit 2.0

Direct Testimony

Of

David Brightwell
Economic Analyst

Policy Program
Policy Division
Illinois Commerce Commission

Petition pursuant to Section 8-104 of
the Public Utilities Act to Submit an Energy Efficiency Plan

North Shore Gas Company and
The Peoples Gas Light and Coke Company

Docket No. 13-0550

December 20, 2013

I. Witness Qualifications

Q. Please state your name, job title and business address.

A. My name is David Brightwell. I am an Economic Analyst in the Policy Program of the Policy Division of the Illinois Commerce Commission ("Commission"). My business address is 527 East Capitol Avenue, Springfield, Illinois 62701.

Q. Please describe your educational background.

A. I received a Ph.D. in economics from Texas A&M University in 2008. My major fields of study were industrial organization and labor economics, and my minor field was econometrics. I received a bachelor's degree in political science in 1992 and a master's degree in applied economics in 2002, both from Illinois State University.

Q. Please describe your work background.

A. I have been employed as an Economic Analyst with the Commission since June 2008. I have focused on energy efficiency ("EE") and smart grid related issues at the Commission. From 2002-2008, I attended Texas A&M University, where I served as a teaching assistant or an instructor for various courses. From 2000-2002, I served as a graduate assistant for David Loomis at Illinois State University.

Q. Have you previously testified before the Commission?

A. Yes.

II. Testimony and Recommendations

Q. Please summarize the topics you address in this proceeding.

A. The purpose of my testimony is to address The Peoples Gas Light and Coke Company's ("PGL") and North Shore Gas Company's ("NS") (together "PGL/NS" or the "Companies" or "Company") proposal for excluding free ridership rates from Net-to-Gross ("NTG") values unless spillover rates are also included. I also address deeming NTG ratio values. Staff witness Jennifer Hinman provides Staff's proposed Modified Illinois NTG Framework (Staff Ex. 1.1). I address the incentives of a partially retrospective application of NTG ratio values, which is included in Ms. Hinman's proposal. Ms. Hinman also addresses a Company proposal to adjust savings goals as NTG values change. In the course of discussing the inclusion of spillover in NTG values, I comment on adjusting goals as well.

III. Calculating Net-to-Gross ratios

Q. Please describe the Companies' proposal for calculating NTG ratios.

A. The Companies propose that all program evaluations must address, in addition to free ridership, spillover from both the participant and non-participant perspectives. According to the Companies, if an evaluation does not account for spillover, then the free rider effect should also be ignored. (NS/PGL Ex. 1.0, 23-24.)

Q. What are free ridership and spillover?

A. A free rider is someone who uses program funds to take actions that he or she would have taken anyway, even if no program funds were offered. The significance

of a free rider is that since this customer would have installed the measure anyway, there is no incremental savings to attribute to an EE program.

Spillover is more difficult to define. I would describe spillover as changes in energy efficiency and conservation practices that result from increased knowledge of energy efficiency through experience with the program and/or word of mouth or a general increase in knowledge about EE that results from the existence of the EE program.

Q. How do free ridership and spillover relate to NTG ratios and net savings?

A. An NTG ratio is one minus the free ridership rate plus the spillover rate. If the free ridership rate is estimated as 20% and spillover is estimated as 10% then the NTG ratio is 0.9 (1 - 0.2 + 0.1 = 0.9). The value of the NTG ratio indicates what percentage of gross savings is attributable to actions of the program. In this example, it indicates that 90% of gross savings occurred as a result of program activities. Net savings is calculated by multiplying gross savings by the NTG ratio. If gross savings for a program are calculated as 1,000 kWh and the NTG ratio is calculated as 0.9, then net savings equals 900 kWh (1000 X 0.9 = 900 kWh).

Q. What is your opinion of the Companies' proposed method of calculating NTG ratios?

A. There is merit in attempting to quantify both free ridership and spillover. However, the measurement and quantification of spillover is much more difficult and

expensive than that of free ridership, and, as a result, spillover might not be quantified. Under the Companies' proposal, any program for which it is too costly or difficult to measure both participant and non-participant spillover, the program will effectively be credited with net savings equal to gross savings. Given the costs and difficulty of measuring spillover, the Companies' proposal could result in most programs measuring gross savings rather than net savings.

I provide two alternative recommendations to address the Companies concerns about the exclusion of spillover. My primary recommendation is that the Commission instead direct the independent evaluators to make reasonable efforts to calculate both free ridership rates and spillover rates while being mindful of: (1) the costs of such evaluations; (2) the likely magnitudes of spillover and free ridership rates within a program; and (3) the significance of the program to the overall portfolio savings. An alternative is that the Commission direct the Companies to perform a comprehensive evaluation of spillover across the utility territory rather than program-by-program. The first recommendation is more consistent with the evaluation approaches undertaken to date. The second proposal is likely to cost less and perhaps more accurately reflect how spillover occurs.

Q. Why do you believe spillover is more difficult and costly to measure and quantify than free ridership?

A. Measuring spillover is, by definition, an attempt to measure changes to behavior that took place outside of program channels because of the existence of the program. It is difficult to know what other actions or inactions a participant took as a result of their experiences with the program. It is next to impossible to know what a utility customer with whom the EE programs had no direct contact did as a result of a utility program.

At least in measuring free riders, most utility programs have information on which customers received rebates or incentives, what items were purchased and how to contact those customers for evaluation interviews/surveys. This information can be used to attempt to ascertain what motivated these customers to use the utility program to purchase a measure or measures. This does not imply that measuring free ridership is costless or easy; rather, information exists to know where to begin the investigation.

Q. You previously stated a concern that adopting the Companies' proposal for calculating NTG ratio values would ultimately lead to counting gross savings. Why?

A. Spillover is difficult to quantify, particularly non-participant spillover. It is also costly. Evaluation budgets are limited to 3% of the portfolio budget. As a result of the difficulty and the cost involved, evaluators most likely cannot evaluate spillover for all programs and certainly cannot evaluate it for all programs within the first year of the upcoming plan while staying under the 3% cost cap.

Accordingly, I believe under the Companies' proposal that neither spillover nor free ridership would be included in the NTG ratio values of many or all programs at the start of the next Plan and may not be measured for many programs by the completion of the next three year Planning Period. If neither spillover nor free ridership is counted, only gross savings remain.

Q. What is wrong with a shift to gross savings?

A. I'm not an attorney, but I do not interpret Section 8-104 of the Illinois Public Utilities Act to permit gross savings. Subsection (c) refers to annual incremental savings goals and Subsection (i) refers to penalties for not meeting those goals (as modified under Subsection (d)). The current approach is to include estimates of free ridership, spillover, or both when one or both can be calculated. The Companies' proposal to include neither factor if both cannot be calculated produces a gross savings result that is likely to reflect greater overestimates of the savings attributable to the program. I believe that applying gross savings to the determination of savings goals leads to incentives that are adverse to the interests of ratepayers.

Staff witness Ms. Hinman is also providing support for a Company proposal to adjust its savings goals as NTG values adjust (Staff Ex. 1.0, 25-29). If the Commission approves the proposal to adjust savings goals, then the Company is neither harmed nor benefitted by the inclusion of spillover. If spillover is included in an NTG value, then the Companies' savings goal increases by the amount of

spillover. However, providing an NTG value equal to one (ignoring free ridership when spillover was not estimated) can harm the ratepayers who are funding these programs.

Q. Why do gross savings lead to adverse incentives harmful to ratepayers?

A. Achieving gross savings is not in the best interest of ratepayers because ratepayers pay for the EE programs. Ratepayers only gain benefits as a result of these payments from net savings, not from gross savings. Gross savings are much easier to achieve than net savings. By definition, programs with high rates of free ridership have a high level of savings that can be achieved even without any utility intervention. With a gross savings goal, a utility has an incentive to devote resources to programs with high levels of free ridership. First, to the extent savings are the result of free riders, utility revenues and profits are not eroded by energy efficiency. Second, it takes less effort to encourage customers to take the rebate if most of those customers were going to do the project anyway. This is essentially the path of least resistance.

Unfortunately, free ridership provides little or no benefit to ratepayers as a group. The nonparticipating ratepayers who pay for the project see their money given to other ratepayers (free riders) who are taking actions that they would take without the utility intervention. There are no incremental benefits associated with free riders, but there are costs associated with administration of EE programs. Programs designed to cater to free riders provide little benefit, redistribute wealth

and take real resources away from society through program administration. The EE programs are intended to encourage ratepayers to adopt EE measures which they would not adopt without the existence of the program. Using a gross savings approach undermines the intent and purpose of the EE statutes.

Q. Are there any other problems with utility programs providing benefits to free riders?

A. Yes. EE programs create a redistribution of wealth. That is, each rebate takes money from non-participating customers and redistributes it to participating customers. When there is an incentive to design programs with high levels of free riders, there is a high likelihood that this redistribution takes place by taking money from lower and moderate income customers and redistributing it toward higher income customers[1].

Q. What is the basis for this high likelihood?

A. The assumption made in DCEO's low income programs (Docket No. 13-0499, DCEO Ex. 1.0, 38) is that free ridership rates are very low because the customers in the low income segment do not have the income necessary to make EE investments absent the rebates. It is reasonable to assume that a customer's willingness and ability to make the investments absent the program increases as his/her income or wealth increases. Thus, free ridership is likely to grow with participant income.

[1] This is somewhat mitigated because the Statute allocates funds to DCEO which directs programs towards low-income ratepayers.

Q. Other than applying a spillover factor to each program or measure, is there another method to consider spillover?

A. Yes. An alternative would be to conduct an evaluation of non-participant spillover across the entire portfolio, the goal being to evaluate how much non-participant spillover is actually occurring across the portfolio rather than trying to analyze spillover on a program-by-program basis. If a non-participant spillover survey is conducted, there would be no need to include a NTG factor for non-participant spillover.

A comprehensive portfolio-level evaluation may more accurately reflect how spillover occurs. I think it is almost impossible to identify a specific program's spillover impact on non-participants; there are too many factors that influence decisions. It is also extremely costly to try to separate the role of a specific program. Much of non-participant spillover is an aggregate effect of being bombarded with new information coming from numerous sources such as information about tax credits for EE measures (which is an influence outside of the utility Program), a friend or neighbor who installed an EE device (which may or may not be a utility influence), a bill insert, a contractor trying to sell a more expensive product, etc. To spend evaluation funds to determine how much the Home Energy Rebate Program or having pipe insulation installed as part of the Multifamily Program or any other program caused people who didn't participate in any of these programs to upgrade to EE measures seems misdirected.

It may be more reasonable to conduct between one and three surveys over the three-year Plan Period in order to determine how much non-participants were influenced by the Utility program. To my knowledge, portfolio-level evaluation is fairly new. I am aware of one study that occurred in the State of Washington. In Commonwealth Edison Company's ("ComEd") EE Plan docket, ComEd witness Michael Brandt indicated awareness of another study in Connecticut (Docket No 13-0495, ComEd Ex. 3.0, 72). The feasibility of a portfolio-level study may need to be developed. The Commission may wish to encourage the Company and its evaluator to work with the Stakeholder Advisory Group ("SAG") in determining the feasibility of a portfolio-level study.

IV. Net-to-Gross Framework

Q. Please explain your understanding of the reasons for adoption of the previous NTG framework.

A. It is my understanding that the NTG framework was established to provide utilities with more certainty in meeting their savings goals. In the electric utilities' first three-year plans, savings were determined retrospectively based on program evaluations.

A drawback of retrospective evaluation is that evaluations tend to be completed after the Program Year is completed. As a result, the information is not available until October or November of the next Program Year, and sometimes later than

that. For example, Electric Program Year 1 was completed on May 31, 2009. The evaluators collected and reviewed data, made verifications of installations, etc., then made preliminary reports available. The utilities and parties in the Stakeholder Advisory Group ("SAG") commented on the reports, which went through revisions before final versions were produced in or after November 2009. Thus, half of Program Year 2 was complete by the time the Program Year 1 evaluations were finished. Retrospective evaluation was problematic from a utility perspective because not only was PY1 complete, but most of PY2 was also complete by the time the utilities knew what the PY1 savings would be and how effective the program was in the market. The NTG ratio values were one of the largest sources for this uncertainty. As a result, the current NTG framework was proposed in the 2010 EE hearings. It is my understanding that this framework was intended to provide greater certainty to utilities by recognizing that, in many cases, the market for EE products doesn't change much, the result being that prospective NTG ratio values would be used to count savings in most cases.

Q. How did the original NTG Framework resolve the problems of delayed reporting of NTG values?

A. The current NTG framework approved by the Commission in 2010 largely allowed for prospective determination of NTG values. Some of the areas where there was to be retrospective application of NTG values were when the program was new and lacking previous evaluation or when programs experienced significant changes in

program delivery or market conditions. As the gas programs required under Section 8-104 began in June 2011, these programs were new at the onset of the NTG framework, and were therefore subject to retrospective evaluation in Plan Year 1 and prospective evaluation in Plan Years after evaluations occurred.

Q. Are there any potential concerns with applying NTG ratio values on a prospective basis?

A. Yes. Since evaluation reports are not completed until about November of the following Program Year, there is a two-year lag between the time the NTG values go into effect for prospective application. That is, the PY1 evaluations were not complete until midway through PY2 and would not apply for prospective application until PY3. As a result, prospective application estimates savings based on conditions that are about two years old at the time the NTG ratio values are being applied. When the market is stable, this may be a reasonable approach. When the market is changing, an NTG ratio value that is two years out of date by the time it is applied is problematic. It is problematic because it potentially provides too much certainty to the affected utility to the detriment of its ratepayers in times of uncertain market conditions.

Q. Please provide an example of providing too much certainty to the utility to the detriment of its ratepayers.

A. I'm not aware of any that have affected the gas utilities as of yet. However, upcoming changes in efficiency standards for furnaces provide a good example. The U.S. Department of Energy ("DOE") is reviewing the efficiency standards for furnaces. There was intent to make a 90% Annual Fuel Utilization Efficiency ("AFUE") furnace the effective minimum standard in the climate zone that includes Illinois by May 2013. However, that standard was delayed as part of a settlement of a lawsuit. Now the DOE is conducting further analysis. It is unclear what the result of the analysis will be, when it will become effective and what efficiency standards will be established. However, once this standard or any other potential change in standard goes into effect, an NTG value that is two years old is unlikely to provide a reasonable estimate of current market conditions. The reason that a two-year old NTG value is unlikely to represent current conditions is that the baseline[2] unit changes to the new minimum efficient standard. Consumers would no longer be deciding between an 80% AFUE and a 92% or greater AFUE furnace. Instead, the choice would be between a 90% and 92% or greater AFUE furnace (assuming 90% AFUE becomes the new standard). Both the relative costs and relative benefits change, which affect the economics of the decision. An NTG ratio based on the economics of the 80% to 92% or greater comparison is unlikely to

[2] Energy savings are determined by comparing usage between a baseline unit and the energy efficient unit. The baseline unit is intended to represent the type of equipment a consumer would have purchased in the absence of the program. It is usually the minimum efficient product available.

reflect market conditions when a consumer faces a comparison of 90% to 92+% AFUE.

Another example where there may be a significant change to the delivery mechanism is that the Companies indicate that they may change some of the measures in the Residential Rebate Program Path – 2 (Home Energy Rebate Program) from customer rebates to upstream incentives (NS/PGL Ex. 1.2, 33-34). If so, it could be argued that the NTG values determined for a program that provided rebates rather than upstream incentives do not accurately portray the decisions consumers and sellers are facing in the market.

Q. Has the current NTG Framework been effective?

A. Overall, it has provided more certainty to utilities than was provided to the electric utilities in the 2008-2011 Planning Period. However, the process is contentious and much time was spent attempting to apply NTG ratio values. Part of the problem was that the current Framework called for retrospective evaluation in times of significant changes to the market or to program delivery mechanisms. The term "significant changes" was not defined and parties could not agree on when significant changes occurred. Gas utilities, which largely received retrospective NTG application because of the programs being new, did not feel that some of the NTG values estimated by evaluators were representative of the true impacts of the program in the market and argued for higher NTG values in those cases well.

Q. Is there a new NTG Framework proposal?

A. Yes. Ms. Hinman provides a proposal with her direct testimony (ICC Staff Ex 1.1). The proposal includes a provision that would provide more certainty to utilities than a retrospective application while acknowledging that new programs and programs undergoing changes in market conditions are inherently risky to both program administrators and to the ratepayers who are paying for the programs.

Q. How does Ms. Hinman's proposal address the concern about using evaluated NTG ratios that are two years old?

A. Ms. Hinman's proposal allows for deeming of NTG ratios to be based on a SAG consensus. The evidence is not limited to the most recent evaluation of a program. Instead, historical performance of the program and evaluations of similar programs within Illinois or in other jurisdictions can be used to determine expected NTG values. In times when a consensus is reached, the consensus NTG value would be applied prospectively. When consensus cannot be reached regarding whether there is significant market change, instead of applying a retrospective NTG ratio value in PY(t+1), the average of evaluations conducted in PY(t-1) and PY(t) would be used.[3] For example, if parties cannot reach a consensus on an NTG ratio value for the upcoming PY4 that begins on June 1, 2014, then the average of the evaluations for the PY2 and PY3 evaluations would be applied.

[3] Where t is equal to the current Program Year.

Q. How does Ms. Hinman's proposal affect incentives for program management?

A. The proposal provides more certainty than the current approach (fully retrospective evaluation) because the evaluation result from PY(t-1) should be known at the time that planning for PY(t+1) takes place. In some cases, the estimated NTG ratio for PY(t) may be available by March 1 of the current Program Year as well. However, it still acknowledges some uncertainty and risk because the result of PY(t) may not be known by the time that the utility has to make plans for PY(t+1).

Additionally, since there is a degree of uncertainty, the utility has an incentive to agree to a consensus deemed NTG value reflective of the NTG value likely to exist in the Plan Year or to move funds away from a risky proposition and towards less risky propositions. This provides benefits to ratepayers because the utility now has an incentive to manage risky programs rather than to divert the risk to ratepayers.

V. Conclusion

Q. Does this conclude your direct testimony?

A. Yes, it does.